WHAT IS CLAIMED IS:

1. A method for screening a compound for an ability to induce apoptosis comprising:

a) providing a first cell containing a normal or mutant p53 gene, wherein said first cell is capable of undergoing apoptosis after microinjection of a DNA construct expressing wild type p53;

b) providing a second cell containing at least one of a mutant XPB gene and a mutant XPD gene, wherein said second cell is less capable than said first cell of undergoing apoptosis after microinjection of a DNA construct expressing wild type 53;

c) contacting each of the first cell and the second cell with the compound;

d) detecting whether or not apoptosis of the first cell occurs;

e) detecting whether or not apoptosis of the second cell occurs; and

f) comparing the detectings of steps (d) and (e), thereby determining whether the compound can induce apoptosis.

2. A method of claim 1 further comprising the step of selecting at least one of the first cell and the second cell from the group consisting of fibroblastic, epithelial, and hematopoietic cells.

3. A method of screening for a compound capable of inhibiting the binding of p53 protein to at least one of XPB and XPD proteins comprising:

(a) providing a reagent having at least one of XPB and XPD;

(b) contacting the reagent with the compound, permitting the compound to compete with wild type p53 protein for a binding site on at least one of XPB and XPD proteins; and

(c) detecting a binding of the compound to at least one of XPB and XPD proteins.

4. A method of claim 3 further comprising contacting the reagent with wild type p53 protein and detecting a binding of the wild type p53 to at least one of XPB and XPD proteins.

5. A method of claim 3 further comprising attaching a label to at least one of the XPB, XPD, and p53 proteins.

6. A method of claim 5 wherein the label is selected from the group consisting an antibody, a radioisotope, and a fluorescent molecule.

7. A method of claim 3 wherein the reagent has a TFIIH complex containing both XPB and XPD proteins.

8. A method of screening for a compound capable of inhibiting at least one of XPB and XPD helicase activity comprising:

(a) providing a reagent having at least one of XPB and XPD proteins;

(b) contacting the reagent with the compound, permitting the compound to bind to at least one of XPB and XPD helicase; and

(c) determining the helicase activity.

9. A method of claim 8 wherein the reagent has a TFIIH complex containing both XPB and XPD proteins.

10. A compound consisting essentially of the amino acid sequence depicted in Seq. ID No. 2, wherein said compound (1) binds to a binding site on at least one of the XPB helicase and the XPD helicase, (2) competes with wild type p53 proteins for the binding site, and (3) inhibits the helicase activity.

11. A compound of claim 10 wherein the compound is a peptide consisting of the sequence depicted in Seq. ID No. 2.

12. A method of diagnosing *Xeroderma pigmentosum* complementation group B or D in an individual comprising:

(a) providing a sample cell derived from the individual;

b) contacting the sample cell with the compound of claim 10; and

c) detecting whether or not apoptosis of the sample cell occurs, thereby diagnosing whether or not the sample cell contains at least one of a mutant XPB gene and a mutant XPD gene.

13. A compound consisting essentially of the amino acid sequence depicted in Seq. ID No. 4 wherein said compound (1) binds to a binding site on wild type p53 protein and (2) competitively inhibits the binding of wild type p53 protein to wild type XPB protein.

14. A compound of claim 13 wherein the compound consists of the amino acid sequence depicted in Seq ID No. 4.

15. A method of diagnosing *Xeroderma pigmentosum* complementation group B or D in an individual comprising:

(a) providing a sample cell derived from the individual;

b) contacting the sample cell with the compound of claim 13; and

c) detecting whether or not apoptosis of the sample cell occurs, thereby diagnosing whether or not the sample cell contains at least one of a mutant XPB gene and a mutant XPD gene.